

REMARKS/ARGUMENTS

Applicants acknowledge the rejection of Claims 1-30 with a right to traverse. Claims 1-30 are currently amended. As a result, Claims 1-30 are pending in this application.

Applicants respectfully request further examination and reconsideration of the rejections for the reasons stated below.

§112 Rejection of the Claims

The rejection states that Claims 1-30 are rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

More particularly, the rejection states that "in line 9" of Claim 1, "it is unclear what element is "receiving an I/O access from the virtual machine application"." Applicants amend Claim 1 to recite "a monitor supporting the virtual application" to be the entity receiving the I/O access from the virtual machine application. Additionally, the rejection states that "[i]n line 9, "the virtual machine application" lacks antecedent basis." Per the Examiner's comment, the Claim is hereby amended to correct the lack of antecedent basis error.

The rejection also states that “in line 11, it is unclear in the claims where the “host operating system” is located.” Applicants hereby amend the Claim to recite that the host operating system is “configured to support the monitor.”

In addition, the rejection states that “in line 12, it is unclear where the “state data” that is updated is located.” Applicants hereby amend the Claim to recite that the state data is updated “at the monitor.”

Furthermore, the rejection states that “in line 14, it is unclear what “resuming execution” is resuming from.” Applicants hereby amend the Claim to recite that the execution of the virtual machine application is resumed “from the exception.”

Moreover, the rejection states that “in the limitations of lines 9-14, there is no relationship or connection established with the instruction interpreter or the processor architecture and it is unclear in the claims of its association/relationship.” Applicants hereby delete the element “instruction interpreter,” so the rejection is moot.

Accordingly, Applicants respectfully request the withdrawal of the rejection for Claims 1-30.

§103 Rejection of the Claims

Claims 1-30 are rejected as being allegedly unpatentable over U.S. Patent No. 6,397,242 (hereinafter "Devine") in view of U.S. Patent No. 7,089,539 (hereinafter "Dornan").

Applicants respectfully submit that the rejection fails to establish a prima facie case of obviousness since the combined references of Devine and Dornan fail to teach each and every element of the Claims.

Currently amended independent Claim 1 is recited below:

1. A method for supporting input/output for a virtual machine, the method comprising:
 - executing virtual machine application instructions of a virtual machine application by using micro architecture code of a processor architecture;
 - receiving an I/O access from the virtual machine application at a monitor supporting the virtual machine application;
 - upon receiving the I/O access, generating an exception;
 - performing the I/O access by using a host operating system configured to support the monitor;
 - updating state data for the virtual machine application at the monitor in accordance with the I/O access; and
 - resuming execution of the virtual machine application from the exception.

The rejection alleges that Devine discloses the claimed limitations of "receiving an I/O access from the virtual machine application (col. 2, lines 21-36, col. 13, lines 20-36, Fig. 1-2)," "upon receiving the I/O access, generate an exception (col. 7, lines 6-13, col. 8,

lines 40-43), "performing the I/O access by using a host operating system (col. 11, lines 34-40, col. 12, line 50)," and "updating state data fro the virtual machine application in accordance with the I/O access (col. 5, lines 60-67 through col. 6, lines 1-6)" as recited in previously presented Claim 1.

However, regarding amended Claim 1, Applicants respectfully submit that the combined references fail to teach or suggest the claimed limitations of "receiving an I/O access from the virtual machine application at a monitor supporting the virtual machine application," "upon receiving the I/O access, generating an exception," "performing the I/O access by using a host operating system configured to support the monitor," and "updating state data for the virtual machine application at the monitor in accordance with the I/O access," as claimed.

The rejection alleges that passages and figures of Devine which include col. 2, lines 21-36, col. 13, lines 20-36, and Fig. 1-2 disclose the claimed limitations of "receiving an I/O access from the virtual machine application." However, Applicants respectfully submit that unlike Claim 1 which recites the receipt of an I/O access as claimed, the passages of Devine instead disclose a virtual machine monitor providing architectural comparability between different processor architectures (col. 2, lines 21-36) and processing of memory references and instruction fetches in a processor architecture (col. 13, lines 20-36). Furthermore, Fig. 1-2 of Devine does not disclose the claimed limitation, either. Accordingly, Applicants respectfully assert that Devine

fails to teach or suggest the claimed limitations of "receiving an I/O access from the virtual machine application at a monitor supporting the virtual machine application."

The rejection also alleges that passages in Devine which include col. 7, lines 6-13 and col. 8, lines 40-43 disclose the claimed limitations of "upon receiving the I/O access, generating an exception." However, Applicants respectfully submit that unlike Claim 1 which teaches the generation of an exception based on an I/O access as claimed, the passages instead disclose a virtual machine monitor operating in different processor modes (col. 7, lines 6-13) and a privilege register (col. 8, lines 40-43). Accordingly, Applicants respectfully assert that Devine fails to teach or suggest the claimed limitations of "upon receiving the I/O access, generating an exception."

The rejection additionally alleges that passages in Devine which include col. 11, lines 34-40 and col. 12, line 50 disclose the claimed limitations of "performing the I/O access by using a host operating system." However, Applicants respectfully submit that unlike Claim 1, the passages instead disclose a single step mode of a virtual machine in executing instructions (col. 11, lines 34-40 and col. 12, line 50). Accordingly, Applicants respectfully assert that Devine fails to teach or suggest the claimed limitations of "performing the I/O access by using a host operating system configured to support the monitor."

The rejection further alleges that passages Devine which include col. 5, lines 60-67 through col. 6, lines 1-6 disclose the claimed limitations of “updating state data for the virtual machine application in accordance with the I/O access.” However, Applicants respectfully submit that unlike Claim 1 which teaches the update of state data for a virtual machine application as claimed, the passages instead disclose an update of a virtual machine monitor descriptor table. Accordingly, Applicants respectfully assert that Devine fails to teach or suggest the claimed limitations of “updating state data for the virtual machine application at the monitor in accordance with the I/O access.” Since the combined references fail to teach each and every element of Claim 1, Applicants respectfully request the withdrawal of the rejection. The other cited reference of Dorman fails to solve the deficiencies of Devine as discussed above with respect to Claim 1. Accordingly, Applicants respectfully solicit allowance of Claim 1.

Since Claims 2-10 are dependent on Claim 1, the Claims overcome the rejections of record by virtue of their dependency to Claim 1 and for the additional features they recite, and respectfully solicit allowance of these Claims. Particularly, regarding amended Claim 4, the rejection alleges that Devine discloses “executing a monitor to implement the I/O access from the virtual machine application, wherein the monitor is configured to handle the exception caused by the I/O access (virtual machine monitor, see Abstract, col. 5, lines 13-30)” as recited in previously presented Claim 4. However, Applicants respectfully submit that Devine fails to teach or suggest the limitations of executing the monitor to implement the I/O access from the virtual

machine application, as claimed. Applicants respectfully assert that unlike Claim 4, Devine instead discloses a virtual machine monitor executing different types of instructions for diverse subsystems. Accordingly, Applicants respectfully assert that Devine fails to teach or suggest the claimed limitations of "executing the monitor to implement the I/O access from the virtual machine application, wherein the monitor is configured to handle the exception caused by the I/O access."

Regarding amended Claim 5, the rejection alleges that Devine discloses "entering the single step mode through the application instructions to handle the exception (col. 11, lines 34-48 and col. 12, lines 49-52)" as recited in previously presented Claim 5. However, Applicants respectfully assert that unlike Claim 5 which recites handling of an exception in the single step mode as claimed, Devine instead discloses executing virtual machine instructions in the single step mode. Accordingly, Applicants respectfully assert that Devine fails to teach or suggest the claimed limitations of "entering a single step mode, wherein the single step mode causes the monitor single step through the virtual machine application instructions to handle the exception."

Independent Claims 11 and 21 recite at least those features similar to that of Claim 1 and are therefore patentable over the cited references for the same reasons. As such, allowance of the Claims is earnestly solicited. Since Claims 12-20 are dependent on Claim 11, the Claims overcome the rejection of record by virtue of their

dependency to Claim 11 and for the additional features they recite. Accordingly, Applicants respectfully solicit allowance of the Claims. Likewise Claims 22-30 are dependent on Claim 21, the Claims overcome the rejection of record by virtue of their dependency to Claim 21 and for the additional features they recite. Accordingly, Applicants respectfully solicit allowance of the Claims.

Accordingly, allowance of the pending Claims 1-30 is earnestly solicited.

Conclusion

Applicants respectfully submit that the Claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is urged to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present application.

Please charge any additional fees or apply any credits to our PTO deposit account number: 50-4160.

Respectfully submitted,

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